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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/840,242	05/07/2004	John James Horsting	2002P18440US01	7585

7590 11/02/2005

SIEMENS CORPORATION
INTELLECTUAL PROPERTY DEPARTMENT
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EXAMINER

ELVE, MARIA ALEXANDRA

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 11/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/840,242

Applicant(s)

HORSTING, JOHN JAMES

Examiner

M. Alexandra Elve

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13, 15, 16, 18-20, 22-24, 26, 28 and 29 is/are rejected.
- 7) ☒ Claim(s) 12, 14, 17, 21, 25 and 27 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 May 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5/7/04.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-11, 13, 15-16, 18-20, 22-24, 26 & 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamann (USPN 6,603,095) in view of Horsting (USPN 6,635,847).

Hamann discloses an apparatus having a laser light source that provides coherent light along the beam axis. A portion of the light is directed to the workpiece at an angle of incidence relative to the axis of the light beam during a first interval in order to form an orifice and chamfer. The apparatus includes an adjustable beam splitter to direct another portion of the beam to form the other of at least one other orifice and chamfer. The first beam and second beam are emitted from the laser source and the first beam and/or second beam is rotated with respect to the longitudinal axis. This generates at least part of a curved surface of a cone that has its vertex between the first and second surfaces. The apparatus may also include splitter, a rotatable beam reflector, a prism, divergence elements and so forth. The ratio of the cross sectional area of the inlet with respect to the cross sectional area of the orifice yields a fluid flow number. The power density or irradiance of the laser light should be about 1 Gigawatt to 1 Terawatt per cm^2 . The laser light source may be a copper vapor laser, a frequency

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doubled neodymium: yttrium, aluminum, or garnet (Nd: YAG) laser. (abstract, figures, col. 2, lines 15-50, col. 3, lines 9-64, col. 4, lines 5-6)

Hamann does not teach the use of non-collimated beams, a scraper reflector or an expander.

Horsting discloses an apparatus for forming chamfers and orifices. A laser beam source of collimated light and non-collimated light is directed at a workpiece at different intervals. The system, in addition to the laser source includes, a collimated light filter, a non-collimated light generating arrangement, at least one shutter, and at least one iris. The system allows substantially simultaneous laser machining of at least one orifice and at least one chamfer in a workpiece. A partial reflector splits the collimated uncollimated light into two beams, of which collimated and non-collimated lights may be extracted. One extraction technique is the use of a scraper mirror that filters out non-collimated light. A reflector diverts the other light beam. A second filter assembly can be an expander, for example a diverging lens or focusing optics with a pinhole to filter out collimated light leaving mostly non-collimated light that is delivered to the second power controlling assembly. If two or more laser light sources are used to produce the respective collimated light and uncollimated light, the laser light sources can be individually pulse width modulated to control the power density or irradiance of the respective collimated light and non-collimate light. The power density or irradiance of the respective collimated and non-collimated light (from a single laser source, separate laser sources or a laser with a non-laser) can be regulated to define a ratio of collimated light to non-collimate light. Preferably, the ratio of irradiance or power density between

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the collimated and non-collimated light can be between 1:1 to 0.1:1 and the diameter of the non-collimated light can be 1 to 2 times a diameter of the collimate light. The laser light source can be either a gas or solid-state laser. The orifice is preferably between 20 microns and 650 microns in diameter. (abstract, figures, col. 2, lines 15-67, col. 3, lines 4-50)

It would have been obvious to one of ordinary skill in the art at the time of the invention to use collimate and non-collimated light as taught by Horsting in the Hamann system because the duality of the beams enhances machining efficiency. Additionally, the use of a scraper reflector and/or an expander, as taught by Horsting in the Hamann system would have been obvious because these are merely variations in a laser system.

Allowable Subject Matter

Claims 12, 14, 17, 21, 25 & 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art does not teach an aspherical reflective surface, a telescopic arrangement, ellipticity and a reflector surface intersecting and oblique to the first axis.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See US PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Alexandra Elve whose telephone number is 571-272-1173. The examiner can normally be reached on 6:30-3:00 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on 571-272-1171. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

October 30, 2005.


M. Alexandra Elve
Primary Examiner 1725